

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (currently amended). A method for one pass assembly in raster image processing of image elements using memory, the method comprising the steps of:

forming a plurality of lists from image elements within a job file, the plurality of lists including ~~at least~~ a first list ~~for~~ of recurring image elements that do not have any variable image elements below them on a stack of image layers and ~~at least~~ a second list ~~for~~ of variable image elements that are not recurring and recurring image elements that have variable image elements both above and below them on a stack of image layers;

storing the ~~recurring image~~ elements of the first list in rasterized form;

storing the ~~variable image~~ elements of the second list in non-rasterized form;

identifying placement within at least one memory area of the recurring image elements and the variable image elements, ~~wherein the identifying step includes outlining recurring image elements, or portions thereof, from the first list and outlining variable image elements, or portions thereof, from the second list in the at least one memory area, the outlining forming element intersection areas;~~

~~inserting into at least some of the intersection areas of~~ initializing the at least one memory area; ~~with the stored recurring image elements, or portions thereof, from the first list; and~~

~~then,~~ raster image processing (RIPping) ~~at least some of the intersection areas of the at least one memory area with the stored variable image elements from the second list.~~

2 (previously presented). The method of claim 1, ~~further comprising the step of~~ wherein the forming of the plurality of lists includes forming a list of recurring elements having one or more variable elements below and no variable elements above in the stack of image layers to provide an additional list; and the

method further comprises:

rasterizing and then storing the elements of the additional list; and
placing the stored, rasterized elements of the additional ~~recurring~~
~~image elements~~ list in the at least one memory area after the step of raster image processing.

3 (currently amended). The method of claim 2, wherein the step of placing further comprises opaquely placing ~~recurring image elements that have no~~
~~variable image elements below them on a stack of image layers~~ the elements of the
additional list in the at least one memory area.

4-6 (cancelled).

7 (previously presented). The method of claim 1, wherein the step of identifying further comprises locating overlapping areas between image elements.

8 (cancelled).

9 (currently amended). The method of claim ~~8~~ 7, wherein the step of identifying further comprises identifying ~~clip regions that are~~ non-rectangular ~~to~~
~~calculate~~ overlapping areas.

10 (previously presented). The method of claim 7, wherein the step of identifying further comprises employing information from the job file to locate overlapping areas between image elements.

11 (currently amended). The method of claim 10, wherein the step of ~~RIPping~~ raster image processing further comprises ~~RIPping~~ raster image processing
image elements from the second list into the at least one memory area in accordance with overlapping areas designated by the identifying step and image element placement within the job file.

12 (original). The method of claim 1, further comprising the step of interpreting mark up language and page description language with the job file.

13-18. (cancelled).

19 (currently amended). The system of claim ~~18~~ 46, wherein one of the memory bands is being initialized and ~~RIPped~~ raster image processed with data from the pre-authored job file while another memory band is having its contents sent to the print engine by the memory output device.

20 (currently amended). The system of claim ~~13~~ 44, wherein the processing means identifies overlapping areas between image elements contained within the pre-authored job file.

21-25 (cancelled).

26 (currently amended). The method of claim ~~25~~ 1, wherein ~~the step of identifying placement further comprises placing~~ at least some of the image elements that contain transparent pixels.

27 (cancelled).

28 (currently amended). The method of claim ~~22~~ 1, wherein the step of ~~RIPping~~ raster image processing further comprises ~~RIPping~~ raster image processing image elements on distributed computers.

29 (cancelled).

30 (currently amended). The method of claim ~~22~~ 2, further comprising the step of storing ~~image~~ the recurring elements in a raster-equivalent graphics state ~~that allows the image elements to be reused and rotated~~ and rotating one or more of said recurring elements.

31-36 (cancelled).

37 (new). A method for assembly in raster image processing of

elements using memory, the method comprising the steps of:

forming a plurality of lists from recurring elements and non-recurring variable elements within a job file, said elements defining a stack of image layers, said lists including a list of ones of said recurring elements having no variable elements below in said stack to provide a recurring element-no-variable-below list, and a list of said variable elements and ones of said recurring elements having ones of said variable elements both above and below in said stack to provide a combined variable and recurring element list;

rasterizing and then storing said elements of said recurring element-no-variable-below list;

storing said elements of said combined variable and recurring element list in non-rasterized form;

initializing a least one memory area with said stored, rasterized elements of said recurring element-no-variable-below list; and

raster image processing said at least one memory area with said elements of said combined variable and recurring element list following said initializing.

38 (new). The method of claim 37 wherein said forming of said plurality of lists includes forming a list of ones of said recurring elements having one or more variable elements below and no variable elements above in said stack to provide a recurring element-variable-below-no-variable-above list; and said method further comprises:

rasterizing and then storing said elements of said recurring element-variable-below-no-variable-above list; and

placing said stored, rasterized elements of said recurring element-variable-below-no-variable-above list in said at least one memory area following said raster image processing.

39 (new). The method of claim 38 wherein said at least one memory area is one of a plurality of memory bands or memory tiles and said method further comprises dispatching said memory bands or memory tiles to a print engine following said placing.

40 (new). The method of claim 39 wherein said rasterizing and raster image processing completely raster image processes said memory area and said placing opaquely copies said stored, rasterized elements of said recurring element-variable-below-no-variable-above list in said memory area.

41 (new). The method of claim 38 wherein said rasterizing further comprises rasterizing and then storing all of said recurring elements prior to said forming.

42 (new). The method of claim 41 further comprising deleting ones of said rasterized and stored recurring elements that are not needed.

43 (new). The method of claim 41 wherein said rasterizing is distributed among a plurality of different computers or processors.

44 (new). The method of claim 37 wherein said rasterizing further comprises rasterizing and then storing all of said recurring elements prior to said forming.

45 (new). A raster image processing system comprising:
a print engine that receives digital data to create prints;
an input area receiving a pre-authored job file;
a storage system including first and second memory areas;
a processing means coupled to the print engine, the storage system, and the memory areas, forming and storing a plurality of lists from image elements within the pre-authored job file, the plurality of lists including a list of ones of said recurring elements having no variable elements above in said stack to provide a recurring element-no-variable-below list stored in rasterized form in the first memory area, and a list of said variable elements and ones of said recurring elements having ones of said variable elements both above and below in said stack to provide a combined variable and recurring element list stored in non-rasterized form in the second memory area;
a third memory area within the storage system, the third memory area being initialized with said stored, rasterized elements of said recurring element-no-

variable-below list and raster image processed with said elements of said combined variable and recurring element list, wherein placement of the image elements in the third memory area is arranged in accordance with image element placement within the pre-authored job file; and

a memory output device that allows contents of the rasterized third memory area to be output to the print engine.

46 (new). The system of claim 45 wherein said plurality of lists includes a list of ones of said recurring elements having one or more variable elements below and no variable elements above in said stack to provide a recurring element-variable-below-no-variable-above list stored in rasterized form in the first memory area; and said a third memory area has said stored, rasterized elements of said recurring element-variable-below-no-variable-above list opaquely placed on said initialized and raster image processed elements.

47 (new). The system of claim 46 wherein said at least third memory area is one of a plurality of memory bands or memory tiles and said method further comprises dispatching said memory bands or memory tiles to a print engine following said placing.

48 (new). The system of claim 46 further comprising a plurality of computers or processors prerasterizing said recurring elements.